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I.—AGGLUTINATION AND ADAPTATION.¹

I.

For a lustrum or two the science of linguistics has advanced on the hypothesis that there are no exceptions to phonetic law. As an *a priori* contention this is no better nor worse than all things *a priori*. Phonetic laws as we have them are the result of our own inductions! The belief in their inviolability depends on our granting *a priori* several impossible conditions. I can do no better than quote the words of Bréal on this point (Transac. Am. Phil. Assoc., 1893, p. 21): "The phonetic laws act blindly if we admit a set of conditions that are never realized anywhere; viz. a perfectly homogeneous population coming into no contact with the outside world, learning everything by living and oral tradition, without any books, without any monuments of religion,—a population in which every one should be of the same social condition, in which there should be no differences of rank, of learning, nor even of age or sex."

Not but that exceptions to phonetic laws are granted: analogy is allowed to be a centrifugal force to this centripetal influence. Dialect variation is called into play also to explain differences of phonetic treatment. It were easier, in my opinion, to allow phonetic variation in many cases than dialect mixture, as in Lat. *bovem* for a theoretical **vovem*.

¹A brief abstract of part of this study was read before the American Oriental Society in New York (March 31, 1894); cf. Proceedings (1894, p. cxl). On my return from New York I found in Bezenberger's Beiträge, XX, p. 81 sq., an article on the Sk. dat. by Johansson which has a certain likeness to my own speculations (cf. infra, p. 425).

I especially note as an objection to a rigid belief in phonetic inviolability two points: 1st. Within the same person's language two forms of expression or pronunciation sometimes obtain. Typical for this is Cicero's use in early life of *abs te*, in later life of *ā te*. In the passage of words from one phonetic value to another there must always be a longish period when both forms obtain, and both forms may indefinitely persist in the same dialect, and be finally adapted to different uses. The Roman grammarians had a clear tradition of words that retained a pre-rhotacistic *-s*. The doublet *quaero* || *quaeso* used to be explained in this way, and possibly this was a correcter view than the interpretation from **quaesso*.¹ 2d. Linguistic science has failed to note the importance of the difference between familiar and unusual words, in regard of their phonetic treatment (cf. Primer, A. J. P. II, p. 201).

I refer at this point particularly to Whitney's 'Examples of Sporadic and Partial Phonetic Change in English' (IF. IV, p. 32 sq.). Tarbell (Transac. Am. Phil. Assoc., 1886, p. 1 sq.) was the first to raise the objections noted by Whitney. The examples presented there ought to be conclusive: an ounce of fact is worth a pound of theory.

These points might be indefinitely increased by insisting on the categories of hallowed words (alluded to by Bréal in the passage just cited), technical words, differentiation of sense coupling with phonetic differentiation, etc. The delicate interplay of analogies is also not sufficiently reckoned with. The source of analogical influence may itself have been lost, or a subsequent divergence of meaning may prevent our ever tracing the analogy. Thus under a too rigid construction of phonetic law the linguist will keep separate what ought to be brought together.

Dialects must eventually root in individual variations. When such are fostered by geographical separation, dialect ensues. Caste distinctions are as potent as geographical remoteness to

¹ As long as there is no good etymology of *quaero*, I propose the following: *quae-sivi* is, like *po-sivi*, a compound, and meant originally 'put-whats.' The original compound started possibly with *quae-stor*, as a contemptuous designation of a person always asking questions. We could then see in *quae-sivi* the source of *pet-ivi* and *laccess-ivi*, and, subsequently, *audi-ivi*. I note the English word 'quidnunc' as comparable in meaning; comparable formations are 'nonplus,' 'what-not.' Who shall say that behind the Sk. roots 1. *ci* 'classify, punish,' 2. *ci* 'observe,' *cit* 'perceive' and *cint* 'think,' a pronominal stem **qi* does not lurk with a primary sense 'to ask why, investigate'?

keep alive dialect in the same district. The caste distinction may pass away and leave no trace but the survival of some word in an unusual phonetic value. Caste may be of no wider extent than a single family.¹

LINGUISTIC SCIENCE UNDER THE REIGN OF PHONETIC LAW.— This is a seductive working theory. Thus the science becomes an exact science with sharp critical possibilities. The analogies of linguistics are not, however, with the exact, but with the natural sciences. In biology one must reckon with variation from type quite as much as with conservation of type.

The greatest trouble with the results of linguistic science up to this time is that they do not harmonize. Schrader's *Urgeschichte* has demonstrated for the Aryans a meagre civilization.² Brugmann's *Grundriss*, on the other hand, gives them an extremely high development of language. These results are irreconcilable to a degree. Grammatical potentialities greater than the Greeks had are an inconceivable possession for a primitive and unlettered people. A primitive people must have had a primitive language.

I illustrate from 'mixed cases': the Greek genitive, for instance, is regarded as a sarcophagus in which bones of dead cases repose. From the biological standpoint it ought to be regarded as the representative of an undifferentiated embryo out of which the differentiated cases have come.

Quite early in the study of Aryan linguistics under the influence of the Sanskrit *Dhātupāṭha* (Root-Book), words were regarded as developments of primitive monosyllables called roots. This tenet has been of late years called in question, and the claim is specious enough that the sentence and not the word is the unit of expression. But if, as the biologist sees in the embryo the traces of previous development, the linguist can see in a child's language a repetition of primitive conditions, then a little child can teach us that the monosyllabic word, excluding mere reduplicated cries like *mama*, which is the first stage, comes before the dissyllabic word, and before the sentence as well.

¹ I am acquainted, for instance, with a family that has maintained the tradition of 'wound' for 'woond,' in spite of all their neighbors. It may be answered that 'woond' is an Irish pronunciation re-introduced into English by the Duke of Wellington (for there is such a story), but the illustration serves to show that two pronunciations may both be current in the same geographical and social environment.

² For a convenient summary I refer to Clark's *Manual of Linguistics*, p. xxiii sq.

Granted our monosyllabic words, whether imitative ('bow-wow') or interjectional ('pooh-pooh!'), or reverbatory like *ouch!* ('ding-dong'), the passage to dissyllables remains still to be traced. If any considerable number of the original stock of words was monosyllabic, then dissyllables must have come by composition or agglutination. Delbrück (*Einleitung*³, p. 111) thus formulates the result of his critique of the theory of agglutination: "Auch jetzt noch können wir nichts weiteres behaupten als was oben behauptet wurde, dass das Princip der Agglutination das einzige sei, welches uns eine verständliche Erklärung der Formen gewährt." I now undertake to locate some of the agglutinative processes of the Aryan language out of which the inflections of the derived languages developed.

PRONOMINAL STEMS.—I note first that the Aryans possessed a considerable number of pronominal stems made up, in the main, of stop-consonants plus a vowel,¹ or of a vowel alone. I note the following, using *a* as a symbol for a vowel undifferentiated between *a*, *e*, *o*²: *a-*, *ta-*, *ka-*, *sa-*, *ya-*, *wa-*, *na-*, *r₂a-*, and these were further combined with one another into groups, thus: *a-ta*, *a-sa* etc., *a-ra*, *tya-*, *sy-*, *swa-*, *kwa-*, *tr₂a-*, *ta-r₂a-* etc. The developed meanings of these stems will display themselves later on. They were at first of very free employment, a sort of uninflected interjection, accompanied doubtless by gesture.

In addition to these interjections were a class of monosyllables to which more definite meaning had been attached. Into their further embryogeny I propose to go in a second essay. I assume as such early Aryan monosyllables *bhar* and *ad*, meaning respectively 'bearing' and 'eating.' They were originally neither verbs nor nouns, but amorphous centres out of which verbs and nouns equally developed, such as we call action-nouns, but with an

¹ This phenomenon meets us in almost every other language as well. I refer to the paper of Dr. Brinton, the American ethnologist and linguist, in the *Proc. of the Am. Or. Soc.* for 1894, p. cxxxiii.

² I put myself on the footing of Merlo's essay: "Ragione del permanere dell' A e del suo mutarsi in E (O) fin dall' età protoariana"; that is to say, though *ɛ* and possibly *ø* had developed by the end of the Aryan period out of *ā*, there was a time when many roots that now appear with *ɛ* || *ø* had *ā* as their original vowel. There is no intrinsic improbability in ascribing *āyō* and *ēdō* to roots originally *ag-* and *ad-*, and the reason for the change to *ed-* before the close of the primitive period is to be sought, in my opinion, in the consonantal environment (*infra*, p. 425 sq.). In constructed forms showing this *a* I shall feel at liberty to omit the construction-symbol (*).

element of agent-nouns, and directly comparable with the English words I have used in translating them.

IMPERATIVE-VOCATIVE.—Starting from such bases as actual words of speech, we may posit as their simplest inflectional forms *bhar-a* (Grk. *φέρ-ε*) and *ad-a* (Lat. *ed-e*). These forms are dubious as soon as we come to their interpretation. They may be imperatives or they may be vocatives. The form is one; the development of meaning is subsequent. Here again we must regard the differentiated as later than the undifferentiated. The vocative is by nature an imperative, and this force may be felt even now, after language has been highly developed. When language was in embryo, the probability of this relation must have been much stronger. The elliptical in language to-day is a continuant of the elliptical in primitive language, and the primitive man was doubtless in addition much more gesticulative. If one's carriage is in waiting before the house, but not directly at the step, the call 'Driver' is enough to have it brought to the step. In the primitive period, before individual names had developed, it would not be necessary to call to a herdsman 'Driver, drive,' for 'Driver' was summons enough. No little child misunderstands to-day if her father says 'Come, my slipper-bringer,' or 'Where's my slipper-bringer?' The command is inferred even without the father's pointing to his slippers. Cries like 'Fire!' 'Murder!' 'Police!' speak volumes, and 'Police!' is certainly a vocative. 'Waiter, two sandwiches' is hardly an ellipsis: when actor and action were fused in one monosyllable, when *bhar* meant 'bearing' and 'bearer,' to say *bhar* to a person who was *bhar* and point at a thing was command enough.

For the identification of impv. and voc., and the subsequent development of the verb from the impv., the common enclisis of voc. and principal verb speaks most strongly (cf. *infra*, p. 416).

As a first enlargement, then, of *bhar* 'bearer, bearing,' I regard *bhar-a*, and see in the *-a* a demonstrative, a suffixless interjection, meaning 'now,' 'here,' which is still preserved in Greek *ἐ-κεῖνος*, *ἐ-μέ*,¹ Lat. *e-quidem*, etc. A combination *bhar-a* would thus mean 'Bearer, here,' and the summons was equivalent to a command to bear; but *bhar-a* was doubtless liable also to the interpretation 'this one bears,' for *-a* has been retained in its 3d personal signification in the perf. 3d sg.; Sk. *vēd-a*, Grk. *Φῶιδ-ε*. This was

¹ Very probably, too, in the interjection *έέ*, where the reduplication gave an especial emotional tone.

termination enough where but two persons were concerned, but given a speaker and two others, inferiors, and a further specification was necessary. Here it was necessary to call in another set of demonstratives, *sa* and *ta*, the former being used perhaps of a nearer and the latter of a remoter person addressed. These forms as thus employed are directly comparable in use with *iste* and *ille* in Latin. In Vedic these stems are used of all persons. To the stem *bhar-* we thus get the groups *bhar-sa* 'bearing this one' and *bhar-ta* 'bearing that one,' and to the stem *bhar-a-* the groups *bhar-a-sa* 'bearing here this one,' *bhar-a-ta* 'bearing here that one.'

Another element of enlargement to the verb comes from the pronominal stem of the 1st person, *m-a-* || *a-m-*.¹ When this is added to the stem *bhar-* we get a form *bhar-am* = 'bearing I.'

The forms *bhar-a-sa* and *bhar-a-ta* in collocations with words of vowel initials were elided to *bhar-a-s* and *bhar-a-t*. I say elision, for this is altogether a simpler and more natural process than the mystical one of gradation for earlier linguistic stages.²

COMBINATIONS OF DEMONSTRATIVES.—In Lithuanian *szlái* we are taught to see a combination of two demonstrative stems, viz. *ko* and *to* (Brugmann, Gr. II, §409). A similar phenomenon is doubtless to be seen in Latin *i-s-te*. The Sanskrit representative of *i(s)te* reverses the order of the two stems, viz. *syá-*, *tyá-*.

¹ In English the commonest word for the 1st person is a nasal grunt represented by such spellings as *humph*, *ugh*, etc. It is properly a vocalic *m*, and is an interjection of the 1st person. Some one makes a remark: I grunt in reply *m*; it means that I am listening. I am asked a question: I answer *m*, and this *m*, with a rising inflexion, expresses surprise or interrogation: I express assent by a double *m^hm*, protracting and accenting the final *m*. I express dissent by protracting and accenting the first *m*. The Aryans had all these uses, for this nasal grunt is at the base of Grk. *μή, νη°*, Sk. *mā, nā*, Lat. *ne* negative, Grk. *νί (vai)*, Lat. *nē* affirmative, Grk. *μῆ* affirmative or negative (reinforced by *vai* or *oí*), Lat. *-ne* interrogative. In this grunt I would find the origin of the 1st person pronoun stem *m-a-*. It is to-day, when emphatic, prefaced or followed by an *h* that is almost sonant, as witness the popular orthography of *humph* and *ugh*. Is this sound identical, perhaps, with Sk. *h* in *aham* 'I'?

² That gradation as a conscious mode of form-making had been developed before the close of the Aryan period is perhaps indubitable, but only three propositions seem to me reasonable and provable in this regard as to the *e/o* series: 1st. *e* is accentual, 2d. *o* is post-accentual, and 3d. complete disappearance of the vowel is pre-accentual. These formulae do not sufficiently explain the words of which Grk. *φῶρος* is the type (infra, p. 426); and I am not at all certain that the *e/o* variation is an accentual phenomenon.

These stems were also Aryan, as will be presently shown. We thus have the triplet *bhar-sa*, *bhar-a-sa*, and *bhar-a-sya*; *bhar-ta*, etc.

GEN.-[ABL.] OF THE NOUN = 2D SG. OF THE VERB.—If we remember, now, that we are dealing with nominal concepts undifferentiated between action and agency, we are entitled to assume a sentence of the following type, paratactic and without a copulative verb¹: *bhar-a-s* 'ad-a-sa', primitively 'bearer this, eater this,' or 'bearing this, eating this.' Now, the potentialities of hypotactic meaning resulting from this collocation are numerous.² 1st. 'Thou bearest, thou eatest,' which passes into 'Thou, the bearer, eatest.' Here *bhar-a-s* is, speaking anachronistically, an *e*-stem³; 2d. '<what> thou bearest thou eatest,' whence the subsequent *-es*-stems were developed; 3d. in certain cases the shading became '<after> bearing thou eatest,' then '<from> bearing thou eatest,' or '<of what> thou bearest thou eatest,' and thus the gen.-abl. was developed. Simpler than *bhar-a-s ad-a-sa* we may assume *bhar-s ad-a-sa*, taking *bhar-s* after the 1st interpretation. Thus 1° *bhar-s* || *bhar-a-s* are active (*nomina agentis*); 2° *bhar-as-* is passive (*nomen actionis*), and 3° *bhar-as*⁴ is a gen.-abl. to a *nomen agentis*. This type we can illustrate (1°) in Sk. *vāc*, Lat. *voc-s*, Lat. °*voco-s* 'speaking'; (2°) Sk. *vac-as-*, Grk. *ῥέπ-ος-* 'spoken'; (3°) Lat. *voc-is*, Sk. *vāc-as* 'of the speaking.' A confusion of active and passive stems is seen in Grk. *ἄγγελος* beside Sk. *āṅgiras-*.

We are prepared, after what has been said, to recognize the origin of the other genitives in this same group. In *bhar-a-sa* || °*sya yaṅ-a-sa* 'of what thou bearest, thou sacrificest' we see an instance of how they might be in actual use. In *bhar-a-sa* we

¹ The copulative verb has no warrant to pass for extremely primitive. The earliest literatures could always dispense with it altogether!

² To justify the shifts of meaning out of which the various case uses are developed, I compare the absolute constructions in the individual languages: Sk. loc. and instrum. absolute, Grk. gen. and acc., Latin abl., etc. These are all remnants of the paratactic stage of linguistic development, and represent original verb-nouns. *Caesare* <*d*> *duce* <*d*> (infra, p. 416 n. 2, for the <*d*>) *vixit* may well be a development from **Caesar ducet vivit* 'Caesar rules, that one lives.'

³ This is Streitberg's nomenclature for the usual '*o*-stem,' and seems to me very convenient.

⁴ We shall presently recognize in this ending (infra, p. 418) what I call a 'thematic' ending. I had independently recognized this valuation and adopted this terminology before being aware that Streitberg, in IF. I 91, had preceded me by some years.

have the Aryan beginning out of which the Germanic genitives sprang (Brugmann, Gr. II, §228), while in *bhar-a-sya* we have the prototype of the Greek and Sanskrit forms.¹

ABL.-[GEN.] = 3D SG.—*bhar-a-t ad-a-ta* or *bhar-t ad-a-ta* = 1st. 'he bears, he eats,' 2d. '<what> he bears he eats,' and 3d. '<of what> he bears he eats.' Typical of the 1st value are such words as Grk. *θη-s*, gen. *θη-τ-ός* 'workman,' Lat. *sacer-dō-s*, °*dō-t-is* 'sacrifice-doer,' *tege-s teg-e-t-is* 'cover-ing.' Of nouns with passive meaning, few examples are quotable. In Greek *ἀ-γνώ-s*, gen. *ἀ-γνώ-τ-ος* 'ignorant,' 'unknown' both active and passive senses obtain. Lat. *seg-e-s*, gen. *seg-et-is* 'field,' 'crop' seems also to contain both senses. The survival of this suffix as abl.-[gen.] is plainly to be seen in Avestan *yimāp* beside Sk. *yamād* (cf. Bartholomae, Altir. Dial., §238), and perhaps in Latin *modō(d)*, *benē(d)*, etc., which Brugmann explains as instrumentals (Gr. II, §275).² In Sanskrit also this ending is preserved in such words as *dev-āt-as*, where in *-āt-* we are to see one abl. sign and in *-ās* another, as in Latin *fund-it-us*; but *dev-āt-as* was perhaps felt as a 3d pers. stem (*devāt-as*), like *seget-is*.

That this suffix had also, at least in its dithematic form (cf. infra), the value of a genitive is seen from Lith. *vīlko*, O.Bulg. *vlūka* 'lupi' (Brugmann, Gr. II, §228). We are not to regard this as a confusion of a differentiated genitive and ablative, but as a survival from their undifferentiated state.

THE ENCLISIS OF THE VOC.-IMPV.—We can assume, however, a still more primitive sentence *bhāra yaga*, subordinated under

¹Greek had perhaps both types: the genitives in *-oio* from *-osyo*, and those in *-oo* from *-oso*. It cannot be proved that *τελείω* || *τελέω* are early and late forms of **τελεσγο-*. The adjectives *τέλειος* || *τέλεος* may belong to an *e*-stem just as well as the pair *χρύσειος* || *χρύσεος*. (Johannson also to the same effect, BB. XX, p. 100, note.) It has not been proved that the difference between *δέος* and *δεῖος* is anything more than orthographic, with the passing vowel between *e* and *o* indicated in one case and not indicated in the other. It is mere hedging with the phonetic laws to write *ποιός* out of **πολ-ιος*, as Brugmann does. One is every way justified in seeing in *ποιός* a gen. **ποιο* out of **ποσγο-*, made nominative, like the Latin pronoun *quōios* (cf. Kirkland in Class. Rev. VI 431 sq.), from the genitive. I ask if the possibility is excluded that *quōio-* is from **quōd-xyo-*?

²I have written the abl. sign indiscriminately *-t* or *-d*. Of course *t* and *d* are but varying forms of the dental stop-consonant, due only to their environment as finals. The setting aside of *-t* for verbal and of *-d* for nominal use was merely a later adaptation. For a different interpretation of *bene* see below, p. 421.

one accent (cf. Wh.², 314 *d*) when equal to two vocatives in apposition, thus: 'bearer-sacrificer.' But as soon as differentiation of verb from noun sets in, then both words are accented, bearer, sacrifice. I compare Sk. *āgrutkarna śrudhī hāvam* 'O-thou-of-listening-ears, heār our call' (Wh.², 594 *a*). If, however, both words have verb value, as in *Pāpa, āga yāga* 'Pāpa, come sacrifice,' it is the second that receives the accent. I cite *asmā-bhyaṃ jeṣi yōtsi ca* 'for ūs conquer and fight.'¹

The reason for the accentual treatment in the last case is obvious. The second impv. is not to be considered initial in a new sentence, as Delbrück takes it, after the native grammarians (SF. V, §23, 1), but is to be considered as dependent on the 1st impv.; thus, 'come and sacrifice' = 'come to sacrifice' nearly.

The approximation of 'and' to a result-purpose particle, as in the English doublet 'go and see' || 'go to see,' is shown in Greek also. Compare Hom. *α 284 ἐλθέ καὶ εἶρεο* 'go and ask' with the normal construction as in Ar. Ran. 326 ἐλθέ χορεύσων.²

¹ We are able to get a glimpse here of the reason for the accentuations *εἰπέ*, *ἐλθέ*, *λαβέ* in Homer. Their accent came from their use as the second of a pair of imperatives. We are justified in reconstructing a pair *ἄγε εἰπέ* (so far as the order is concerned) by γ 332 (ἀλλ' ἄγε τάμνετε), θ 149 (ἀλλ' ἄγε πειρησάσθαι). In the Odyssey Homer has elsewhere the order *ἄγε* + intervening words + impv. There are, however, five cases of *εἰπ'* *ἄγε* (ο 347, ψ 261, Γ 192, I 673, K 544), a position doubtless due to metrical considerations. *ἄγε... εἰπέ* occurs nineteen times. Homer uses *ἐλθέ* five times with impv. or infin. (= impv.), once in the order of Ψ 770 κλῦθι, θεά, ἀγαθή μοι ἐπίρροθος ἐλθέ ποδοῦν, and uses *λαβέ* three times with another impv. (infin.), once in the phrase *παρέζεο καὶ λαβέ* (A 407). The phrase *ἄγε ἐλθέ* is to be inferred for Greek from Homer's *ἄγε... εἰσελθε* (π 25), *ἄγε... ἵομεν* (ρ 190). By Sk. accentual laws a phrase *ἀλλ' ἄγε λαβε would accent only *λαβέ* of the two impvs. In Grk. *ἄγε λαβέ* the accent of *ἄγε* is the secondary substitute for enclisis, according to Wackernagel's famous law (KZ. XXIII, p. 457; Bloomfield, A. J. P. IV, p. 21), whereas *λαβέ* would represent the original Aryan accent of a thematic aorist impv. (cf. *λαβών*), when it follows directly another impv. (cf. *yōtsi* in the Sk. example cited above).

² Connection can possibly be established by this line of reasoning between Sk. *utd* 'and' and Lat. *ut* of purpose-result. *Ut* belonging to *utd*, fell into confusion with the rel. **quut*, **cut* (cf. Sk. *kū-tra*) || **put* (?) in the Italic period, whence the loss of *qu-*, *c-* || *p-* in *uter*, *ubi*, etc. In the Vedas *utd* seems a simple 'and,' but in Brāhmapa it is about equivalent to *itague*, and amounts to the affirmation of a result; it is construed with the opv. as well as the indic. While *itague* never became a particle of result, the precisely equivalent particle *ὥστε* reached that stage.

THEMATIC AND DITHEMATIC.—Grammatical terminology has heretofore practically restricted the term 'thematic'¹ to verbs. After the reduction of verb and noun to a common basis, it is necessary to extend the terminology to nouns also. If now in Avestan *yim-a-p* we see a thematic abl., then for Sk. *yam-ñd* I propose the term 'dithematic.'² The origin of the dithematic forms was this: to a stem capable of functioning alone as a nominative, there was doubtless a 2d pers. nom. in *-s*, and also a 2d pers. thematic nom. in *-a-s*; thus to *bhar* the forms *bhar-s* and *bhar-a-s*. There was also a voc.-nom.³ *bhar-a-*. Now, when in the upgrowth of inflection *bhar-a* was conceived as a stem and *-as* was conceived as an ending, by the syncretism of the two there resulted *-ās*.⁴ For the ablative likewise there was a form *-ā*.

THE DISTINCTION OF NUMBER.—No language has ever entirely differentiated singular and plural in the 2d person. Our English *you* is in line with linguistic phenomena all over the Aryan field. It is fair to extend this fact to the primitive period. Thus in our gen.-abl. form *bhar-a-s*, which we saw was also a 2d pers. nom. sg., we may see the nom. plur. *bhar-as*; and as this *bhar-as* (conceived finally as a stem) was used as object in the sg. (Grk. *γένος*), so, doubtless, it was conceived as object in the plural. In the 3d declension nom.-acc. *-ēs*⁵ of Latin we may see an example of this in a dithematic form.

ACC. SG. = IST PERS.—I now take for illustration the sentence *bhar-am, ad-am* 'I bear, I eat.' This comes to mean, 1st. 'I bearing eat,' 2d. '<What> I bear I eat,' 3d. '<Of what> I bear I eat.' The manifest accusative of 2° will be clear to all. In 3° no vital genitive survives of the thematic form, but the di-thematic form is to our hand as the Aryan GEN. PLUR. in *-ōm*. In agent-

¹ Streitberg seems to use the term 'thematic' freely, as in IF. I, p. 91, but Johansson (BB. XX, p. 100) prints with inverted commas 'thematische.' Brugmann (Gr. Gr.², p. 91) speaks of *-o-* as a nominal suffix, but so far as I know does not recognize the division of noun-stems as I suggest.

² This term has been used already of the *r/n*-stems, but not, so far as I know, of the endings with long thematic vowel.

³ Represented by Grk. *ἐπιότι*, etc., in Homer, and possibly also in *macte* of the Latin proverb *macte virtute esto*, which may be, however, for *macte* <*d*> *virtute* <*d*> (supra, p. 416), that is to say, an abl. of quality.

⁴ Such a dithematic nom. sg. is, in my opinion, the *-ης* of Greek *-εϛ*-stems. I note especially Sk. *dñgirās* to Grk. *ἀγγελος*.

⁵ Explained by Brugmann (Gr. II, §325, 1) as being derived from *-ēns*, spite of Latin *ensis* from **nsis*.

nouns the form 1° seems on the face of it not to have survived. As to nominatives like *bhar-a-s* stems like *bhar-as-*, and to nominatives like *bhar-a-t* stems like *bhar-at-* were developed, we should expect the group *bhar-a-m* and *bhar-am-*, and so we may look upon the participial suffix *-m-a-* as an extension of the non-thematic type *bhar-m-*; thus Grk. θερμό-ς 'heating, warm' (Brugmann, Gr. II, §72).

DEVELOPMENT OF THE PTC. STEM IN *-ant*.—It seems to me indubitable that, given a stem *bhar-am*, we should have to allow it a bye-form *bhar-an* as the product of sentence euphony.¹ Thus in 1° we can see the Sk. ptc. *bhār-an* (nom. sg.). We thus reach an explanation for the voc. *bhāvas* to the nom. (of the ptc.) *bhāvan*: the former is 2d pers. and the latter 1st pers. (? or 3d pers., infra, p. 432). It is by no means conclusive that in Sk. *bhāv-a-tas* we have an Aryan *-nt-as*.² It may, instead, be comparable with the type *devātas* (supra, p. 416). The working of

¹ Brugmann (Gr. II, §325) implies that the group *-ms* in Aryan would be permanent and not become *-ns*, on the ground, I infer, of certain Baltic forms in *-ms*, *-mt*. In this I cannot believe he is right. The persistence of *-ms* in the Lith. dat. plur. *kūrēms*, for instance, must hang with the dat. sg. *kuriēm*, ins. sg. *kuriū-mi*. Spite of the loss of the Lith. correspondent of Latin *decimus* we are to see in *deszintas* 'tenth,' *deszint* 'ten' the influence of Aryan **dekmmo-s*. Because of Lat. *decimus*, Sk. *daśamā-*, we cannot conclusively set up an Aryan form **dekmo-to*. Grk. δέκατος, Goth. *taihunda*, etc., may well have been called separately into being from ἑκτος, *saihta*, just as Sk. *saptatthas*, OHG. *sibun-to* probably were. Brugmann (Gr. II, §186) cites O.Prus. *deiwan* (*deos*) as proof that the Aryan acc. plur. was *-ns* and not *-ms*. Even granting the validity of the contention that Baltic *-ms* represents Aryan *-ms*, this example will prove nothing. The Baltic paradigm would have had an acc. sg. represented by *deiwan* (Brug., Gr. I, §217), beside which a plur. **deiwan-s* could hardly have been maintained. This can be proved by Pruss. *mans* 'nos.' In the Aryan acc. *ns* (Goth. *uns*) I see *ms*; there was also an accented form *ma-s*, doubtless. Out of interplay between *ma-s* and *ns* a bye-form *na-ms* developed, whence a plur. stem *na-* was abstracted. Pruss. *mans* represents a still more primitive syncretism. Nothing more definite than *m/n* ought to be written for a final nasal in the Aryan period. This would save a good deal of analogical juggling about *novem*, for instance.

² The strong stem has penetrated from the nom. into all but the Indiranic group, the Celtic, and possibly the Italic (but here the influence of the gerundive *ndo*, cf. A. J. P. XV, p. 317 sq., can account for the vocalism). Proof is furnished by O.Irish *car-it* (dat.), *car-at* (gen.), which may represent an original *-et* or *-ot*. Additional proof is furnished by Grk. εἰδότε-ος, Sk. *vidvdt-*, for under any theory of the perf. suffix—Schmidt's *van-s* or Brugmann's *vas* (Cl. Rev. VIII, 455 n. 2)—we have to seek an analogical source for *-vat-*, and that source was doubtless the pres. ptc. with a stem-form still represented in Irish *-at-*.

the *-t-* out of *bhāvatas* over the rest of the inflection is simple enough. In this way *rājan-* 'king' is to be interpreted as an older form of *rāj-ant-* 'ruling.' If, however, we take a 1st-person form *bhar-am* with euphonic bye-form *bhar-an*, it was liable to be made 2d person *bhar-an-s*, or 3d person *bhar-an-t*; thus in Sk. *rājā* (nom.sg.) 'king' may lurk a 2d pers. **rājānz*, from **rājan-s*, and in *rājan* 'ruling' a 3d pers. *rājan-t*.

THE INSTRUMENTAL SG.—I resume my sentence in the form *bhar-m̐ adāt* 'I bear, he eats.' This is liable to the interpretation 'by my bearing he eats.' With consonantal stems Brugmann's argument for an instrumental suffix *-a* rests on forms like Sk. *prati-bhidy-a* 'with splitting,' Greek prepositions like *πεδᾶ* 'with,' and Latin *ped-e* 'with the foot.' Every one of these forms may represent an Aryan *-m̐*.¹ The instrum. ending *-mi* of the Baltic languages speaks for this conception, and is to be equated in the verb with the primary 1st sg. *-mi*.

It remains to discuss the instrumentals to *e*-stems of which Sk. *vṛkā* is a type. I note, in the first place, that if the assumption of a suffix *-m̐* above is right, and of a suffix *-mi* = 1st-pers. vb. suffixes, then we may see in *vṛkā* the correspondent of the 1st pers. in *-ō*, e. g. *φερ-ω*.²

Another explanation of this case involves no phonetic difficulties. We know that the type *bhar-asa* is impv. in Greek (cf. *ἔπεο*) in its verb-function, and in Latin impv. or indic. (cf. *sequere*). The type *bhar-a-ta* is indic. ('middle') in Greek (*φέπετο*), impv. in the Sk. 'injunctive' (*bhārata*), and impv. in Latin (*tegitō*).³ Then

¹ Certainly in such early Latin as the epitaphs of the Scipios such forms as *omne* for *omnem*, *aide* for *aidem* appear. It may well be that *-e* is *-ē* and the normal representative of final *m̐*. Then in *omnem* we are to see a restoration from *domom*, etc. In *decem* the force of compounds like *decemviri* accounts for the form. It cannot be denied, however, that 1st- and 2d-declension accusatives also lose the final *m̐*. It is not necessary to explain *pede* as instrum. of the 1st person. It may well be instrum. of the 3d, developing from a sentence *bhar-ad adasa* 'he bears, thou eatest,' which gives 'by his bearing thou eatest.'

² The relation of *-ō* to *-om*, primary and secondary 1st sg., has not been explained. Can we conceive of *-ō* as *-ē* arising from *-om* in certain cases of sentence euphony? This seems to me the interpretation of Homeric *δῶ* 'home,' which I take to be for *dom-*, a neuter non-thematic stem. Note the suffixless Avest. loc. *dam̐*. Another explanation is given below (p. 421).

³ I am not oblivious of the form *tegitōd*, but I regard *-itōd* as syncretic, just as the abl. *-itos* (*fund-it-os*). Back of *tegitōd* lie three forms: **teget̐* || **tegōd* (dithem.) and **tegetō*; *tegitōd* is **tegitō* reinforced from **tegōd*, or, more simply, the failing abl. sense of *tegitō* was reinforced, and the result was *tegitō-d*.

in the doublet *bhar-a* || *bhar-a-sa* we can infer the indic. function for *bhar-a* (supra, p. 413). In a sentence *bhar-a adam* 'thou bearest, I eat,' the sense 'by thy bearing I eat' comes easily. Thus in the instrum. -ā we may see a dithematic continuant of *bhar-a* in the typical sentence given.

There is also no reason why in such Latin adverbs as *bene* we should not see this earliest extension of the stem. We could then explain the vocalization of *bene* : *bonos* by regarding *bōn-* as infected from -*ōs* (infra, p. 426).

Another source from which the instrum. may spring is the 1st sg. -*āu* || -*ā*, and the loss of all trace of *āu* may be due to differentiation from the dual (infra, p. 429).

There is also an instrumental suffix in -*bhi*, Grk. -φι (e. g. θεόφι-(ν), p. 477). This I take to be a 2d-pers. suffix directly comparable with -*mi* of the 1st pers. I connect this suffix etymologically with Sk. *bho* (not *bhos*, see Wh.², 174 *b*) 'your honor, your presence,' belonging possibly to the √ *bhū* as a vocative; cf. *atrabhavant* 'your lordship' in the drama. This *bho* is, like 'your lordship,' a sort of mixture of the 2d and 3d persons. It was sometimes pronounced with *plūti* (Delbr., SF. V, §270 *a*), which meant *bhāzu* (Wh.², 78 *c*). We can then identify it with the final element in Grk. ἄμ-φω, Lat. *am-bo*.¹ There is also

¹ The only way in which these words can be brought into relation with Sk. *ābhāu* is to see in *ā* a sometime representation of *m̐*, as in Avestan *guf-ra* to Sk. *gabh-i-rā* (Jackson, Proc. Am. Or. Soc., 1893, p. xi; Horn, A. J. P. XI 89-90). We have also to see in ἄμφι : Sk. *abhī* an irregular representation of Aryan *m̐*, repeating itself in Lat. *ambi*. One may ascribe the irregularity to Aryan dialect-differences for solution. But in ἄμφω there lies, I suspect, 'I + thou'; the permanence of the nasal in the orthography may rest on consciousness of the relation with 'me.' In Lat. *ambo* we may see the direct continuant of *m̐-bh-*. It is not proved that *m̐* is represented by Lat. *em* as *n̐* is by *en*. For -*m̐* final = *em* I have given a reason above; back of *em* lies *e*, from *a* (p. 420 n. 1). Taking the material of Stolz (in I. Müller's Hdbch. II², §45), we can explain *sem-el* as affected by *semper* from **senper* 'once' ('always,' by analogy of opposites, *sim-plex* as affected by *singuli* from **senguli*; the Lat. forms *hemo* || *homo* need not be identical in grade with Goth. *guma* from **ghm̐m-on*, for as Sk. *mūrdhān*, gen. *mūrdhās*, shows, there was a shift of accent to the case-endings, and for the gen. *hominis* we can infer oxytone accentuation, whereas in *hemo* the initial accentuation of vocatives may have played a rôle. It was perhaps from noun vocs. of initial accent that the Italo-Celtic initial accentuation originated. For *imber* 'shower' : Sk. *abhrd-* an Italic stage *n̐fer-* must be admitted, cf. Osk. *anafriss* (?). The derivation of Lat. *emo* from *n̐mo* (cf. Grk. *vémō*) would account for *e-*, if that derivation is correct. There is, however, no ground for assuming an inflexion for any of the congeners of *vémō* in the

kinship, doubtless, between $\phi\iota$ and Grk. $\phi\iota\lambda\omicron\varsigma$, whose pronominal nature Bugge long ago recognized for Homer (KZ. XX, p. 42).¹ The vocalization of the doublet $bh\bar{a}u \parallel bh\ddot{a}u$ is due to its being a voc. of the stem $bh\ddot{a}$ + the interjectional $\ddot{a}u$ (infra, p. 429); the $\sqrt{b}h\ddot{u}$ is after all a secondary development from this demonstrative (cf. Part II).

THE PRIMARY ENDINGS.—The discussion of the instrumental suffix $-mi$ brings up the question of the origin of the primary endings. We have equipped the Aryan verb with these forms: $bhar-t$ (Lat. *fer-t*), $bhar-ta$ (Lat. *fer-to?*), $bhar-a-t$ (Sk. injunc.² $bh\bar{a}r-at$), $bhar-a-ta$ (Grk. inj. middle $\phi\acute{\epsilon}\rho\epsilon\tau\omicron$). There were also forms like $bhar-a-tya$, which does not survive as a vb.-form (but cf. the Sk. gerundial doublet $-tya \parallel -ya$, Wh.², 992); but 2d pers. $bhar-a-sya$ survived in nouns and also in verbs in a modified form, viz. in the future. Taking the typical sentence $bhar-a-t\ adasya$ as impv. = 'of what he bears thou shalt eat,' $ad-a-sya$ became the basis of a new tense-system, in a fashion that may be represented proportionally thus: $ada- : ada-sa = adasya- : adasya-sa = adasa- : adasa-sa$. That is to say, as impv. $ad-a$ began to be looked on as a base for indic. $ada-sa$, $ada-sya$, so impvs. $adasa$, $adasya$ formed the base of an indic. $adasa-sa$, $adasya-sa$, etc., and in these new infixed

weakest grade with accented thematic vowel. On the other hand, *emo* 'take (buy),' Lith. *imù*, O.Bulg. *imq* are plausibly connectible with Sk. $\sqrt{y}am$ 'hold.' In *yachati* we have the weak grade for $*yachdti$, and the Epic *yamati* is perhaps for $*yamdti$. Of positive proof that m gives *am* in Latin, at least when followed by labial consonants, I cite the form *ampos*, i. e. *impos* (Pl. Trin. 131; see Loewe in Act. soc. phil. Lips. V, p. 306 sq.). The usual form *impos* was due to the neg. *in-*. *Ambo* is liable to the same explanation as *ampos*. Perhaps in *sa-nec-si* from $sm\bar{o}$ -*nec-si* or o -*nec-si*? (cf. my explanation of *vinxi*, A. J. P. XIII, p. 481) we have a similar treatment of η : the primary meaning of the word would be 'bind together.' The formation of the adj. *sacer* can then be confidently referred to that Italic period in which Umbr.-Osk. *pacer* was forming to Latin *pācit*, *pāciscor* 'make a covenant.' For *pacer* the sense is 'faithful'; cf. Bréal, Tab. Eug., p. 74, on this word.

¹ I note that these comparisons were original with myself, and started from Sk. *bho*, a comparison which, so far as I know, has never been suggested by anybody. I find that the other comparisons have been in part anticipated by Johansson (BB. XIII 122 f.).

² I use the term 'injunctive' of the augmentless tenses with secondary endings, whether they have impv. value or not. I note that these tenses in Sk. are a sort of blank verb-form indicating all tense and mode values, the undifferentiated embryo out of which the functional tenses and moods have developed (cf. Wh.², 587). Whitney does not specifically mention the future use, but it is, after all, implicit in the opt. and subj. use.

elements *-sa*, *-sya* we are to see the origin of the aorist-future systems. Returning, however, to the form *adasya*, we can illustrate the upgrowth of the *-si*-form by the following proportion: *adasa* : *adas* = *adasya* : *adasy* || *-si*.

There is, however, another possible explanation that deserves to be mentioned. After the form *bhar-at* from *bhar-a-ta* became fixed as an independent form, it came, doubtless, to stand as a sentence final; now, in pronouncing *-at* a breath-fragment is bound to follow the *-t* as the tongue falls to a position of rest. Who shall say that this breath-fragment, which may be described as a whispered vowel, was not recognized by the Aryans as a speech-sound, and preserved in the subsequent literatures as *ī* or as *ū* (Sk. and O.Bulg.)? Its extension to the other persons would easily follow.

THE LOCATIVE.—The raging battle of the locatives is summarized by Meringer in his review (IF. Anz. II, p. 13 sq.) of Bloomfield's 'Adaptation of Suffixes' (A. J. P. XII, pp. 1-29). After all, the loc. is either suffixless or has the ending *-i*. As a suffixless case the locative, in liquid and nasal stems, corresponds either with the nominative (masc.) or the acc. (neut.). In the latter case I believe it to be an out-and-out accusative. Of locs. to action-nouns like 'bearing' there can hardly be question in the primitive period. The conception of loc. and acc. is entirely indifferent: 'I hit his arm,' or 'I hit him on the arm'; only a shade removed is 'I hit at his arm,' where failure to realize is implied by the context. As a *terminus ad quem* the loc. cannot be regarded as more frequent than the acc., and as a suffixless case the loc. and acc. have the same form for neuters to designate place where. As to the correspondence of suffixless locs. with masc. noms., it may be remarked that nom. and acc. were never fully differentiated for neuts., and this state of things was doubtless prior to the differentiation in mascs. In such nom.-locs. I see nom.-accs., the loc. being a subsequent development.

To the loc. suffix *-i* I assign just the origin assigned above to *-i* in the personal endings. A stem *ped-* used as a nom.-acc.-loc. before the 2d pers. *-s* became a nom. sign, and the 1st pers. *-m*, an acc. sign, was as a sentence final *ped+v*,¹ in the developed languages *ped-i*.² This *-i* came to be analogically attached even

¹ By this sign I indicate the whispered vowel or breath-fragment.

² Bartholomae's locs. in *-u* may show a variant rendering of this *v*, just as the Slavic verb-forms in *ū*; cf. 3d sg. indic. *-ti*, impv. *-tu* in Sanskrit.

to liquid and nasal stems. Thus we might account for certain *-i*-stems; e. g. Lat. nom.-acc. neut. *mīte* for **mīti*. For the origin of the oblique cases cf. *infra*, p. 431.

THE DATIVE.—A ground of kinship between dat. and loc. is perhaps to be seen in their nearly equal use as terminal cases. The suggestion, then, that in the *-ai*-diphthong of the dat. we should see a loc. because of the *-i*, cannot be utterly rejected. In this diphthongal dat. ending Brugmann (*Gr. II*, §245) sees *-ai*, on the basis of Greek infinitives like ἴδμεν-*ai*, but we cannot be in the least sure that the vocalization has not been affected by the dithematic infinitives in *-ai* (cf. Sk. *°dhyāi*, Grk. *-θαι*).¹ The home of a vital dat. is, after all, in the *e*-stems, where we find the endings *-ōi* and *-īi*. If a rapprochement be made of dat. and loc.—and be it remembered that in Greek one must speak of a dat.-loc.—then in the dat. diphthong *-ai* of consonant stems we might recognize a thematic *-a + i*, that is to say, a locative, and in *-īi*, *-ōi* dithematic continuants of *-āi*.

THE DATIVE = 1ST SG. MIDDLE.—But a more primitive character must be assigned to the dat., and one allied to verb-inflexion. The dat. is the case of personal interest and the middle is the mood of personal interest, and the diphthongal element characterizes their endings. The origin of this diphthong I find in the following considerations. I note the exclamations *ai*, *aiāi*, *oi*, *oiμoi*, *ei* in Lat. *ei mihi*, and also Lat. *vae*, and all of these words are, speaking anachronistically, datives. A Sanskrit interjection *ē* is reported by the lexicographers, and forms perhaps the basis of the emphatic demonstrative *e-ta*.² If we bear in mind how infrequently the interjection finds room in the earliest forms of literature, it does not seem too bold to assume an Aryan interjection *ai*. In Grk. *oiμoi* I regard the *-oi* at the end as assimilated to the initial interjection *oi*-. If we assume a sentence *ai! edai bhar-a-sa* 'oh I eat, do thou bear,' it is not hard to pass into the sense 'for my eating, do thou bear.' As a warrant for a 1st sg. middle *-ai* one can cite Sk. pres. and pf. forms and also the Lat. pf. in *-z*. The Greek ending *-μαι* is of subsequent origin.

Rearranging our sentence to *ai bharai adasa* 'oh! I bear, thou eatest,' the hypotactic result is subsequently '<of what I bear> thou eatest,' i. e. a gen., or 'by my bearing thou eatest,' i. e. an

¹ On the origin of these infinitives and the nature of the final diphthong, I refer to my note on the Lat. gerundive (*A. J. P.* XV, p. 317).

² Cf. Sk. *as-āu*, Grk. *av-τε*, etc., *infra*, p. 429.

instrum. As a relic of the gen.-dat. we must regard Sk. forms in *-āyāi* (Wh.², 365 *d*); the Grk. dat. is really a dat.-instrum. Thus, once again the 'mixed' case preceded the differentiated.

In consideration of the Indiranian datives in *āya*, for which I give below a specific explanation as secondary, we cannot exclude the possibility that the dative *-āy* is related to *-āya* in just the same way that the gen. *-as* is related to *-asa*. It does not seem to me, however, that by this explanation we are brought so close to the solution of the optative problem which is, I believe, bound up in the complex of dat. = 1st sg. mid. (cf. *infra*, p. 439). Johansson, in BB. XX, p. 98, has indeed already seen in Sk. *-āya* an Aryan *-o-yo*.

I have now developed the typical Aryan cases for the sg. It remains to speak of some individual phenomena in Sanskrit.

THE SK. DATIVE IN *-āya*.—The Sk. dative is theoretically **devāi* || **devāy*; the historical form *devāya* is due to the influence of the gen. *devāsya*, and it is not improbable that the gen. before vowels was elided in Aryan to *-sy*, which would render this analogy easier.

THE SK. INSTRUM. IN *-ena*.—We are entitled to assume (*supra*, p. 420) that there was a Sk. 1st pers. instrum. of the type **dev-am* thematic, or **dev-ām* dithematic,¹ and to assume the bye-form **devan* in sentence euphony (*supra*, p. 419 n. 1). Now this **devan* may have added once more the consonantal stem-suffix *a* (from *m*), giving **devana*; cf. Avest. instrum. sg. *ka-na* and Sk. adverbial forms like *caná*. In *devéna* we can explain *-na* in the way suggested, and see in *deve-* a thematic dat.-instrum. (*supra*, p. 424), as in *deve-bhyām* (instrum. dual).

THE SK. GEN. PLUR. IN *-ānām*.—Here I find a syncretic form, the result of the euphonic doublet **devām* || *devān*. From these sources *-n-* became a regular inflective element in Sk.

CHANGES OF THE VOWEL *a*; GENDER.—According to the view stated above (footnote to p. 412), *e* and *o* developed out of a primitive *a*, owing to the consonantal environment. Thus in a 2d pers. nom. to an *e*-stem we should expect *-e-s*, the dental vowel before the dental sibilant, and so in the 3d pers. abl. *-e-t*. In the 1st pers. nom.-acc. an original *-a-m* gave us *o-m*, a change due to the rounding of the lips preparatory to their closure for the *-m*-sound. Thus, and not by gradation, I would explain the vari-

¹ For instrumentals in *-ām* cf. Brug., Gr. II, §896, Anm., and the articles there cited.

ation of *e* and *o* in masc. thematic inflexion. No gradation theory will genetically explain, for example, the *-o-s* of thematic genitives to monosyllables, which was always under the accent, and no gradation theory explains the invariable *-e* of the voc. sg., which was never under the accent; no explanation of the stems *ped-* || *pod-* as due to gradation can pretend to be adequate. Particularly cogent for the view I have stated is the fact that in verb-inflexion the thematic vowel *-o* appears only before *m* (*n*).

By this view an explanation of the type *φόρος* is in our reach. There were conflicting 1st and 2d pers. noms. in *o-m* and *e-s*. Out of this conflict came *o-s*; but this was not all: when **bher-e-s* and **bher-o-m* created the new type **bher-o-s*, the infection went further to **bhor-o-s*. By subsequent differentiation came accs. of the *γέν-ος*-type (supra, p. 415) and noms. like *φός-ος*. This explanation is obviously applicable to the doublet represented by the Grk. gen. *ποδός* || Lat. *pedis*, i. e. **pedēs*.¹ By this explanation Lat. *bene* represents an older vocalization than *bonos*.

The same principle of explanation is applicable to initial vowels and root-finals. Let us take the *√ag* 'drive.' Is there any phonetic reason why *a* was the vowel-shade in this root? Yes, a very good one: *a* and *g* are both gutturals. In the same way the *√ad* 'eat' became *ed-* by assimilation. It is noticeable that in a language as copious as the Greek there is no root-word beginning with *ἐγ-*, for in *ἐ-γείρ-ω* the so-called prothetic *ἐ-* is the 'augment,' just as in *ἐ-θέλ-ω*: Homer uses *θέλ-ω* only once, and **γείρ-ω* never. There is no ground for believing that the augment was past originally, and I do not look upon the relation of *θέλ-ω* : *ἐθέλ-ω* as in any way different from that of *κείνος* : *ἐκείνος*. The reason that in *ἐθέλ-ω* 'wish' the *ε-* became attached to the entire vb. was doubtless that it had a slight emotive force (cf. the interjection *εἶ*), which helped the connection to be made. The use of the unaugmented past tenses in both Homer and the

¹ In Lat. *pedem* we may see a thematic acc. affected by the gen. **ped-es*. Sk. *pād-am* may be also a thematic acc. persisting in non-thematic inflexion. Thus in the Lat. instrum. *pedē* we can see *-ē = -m*_o (supra, p. 420), and in Sk. *pād-ā* (with secondary lengthening) *-ā = -m*_o. *Apropos* of Grk. *ποδός*, I suggest that the doublet *πός* || *πούς* is based primarily, by external phonetic similarity, on the doublet *βός* || *βούς*; *ὀδούς* 'tooth' has doubtless affected the accent of *πούς*, while the accent of *πός* (for *πός*, Bloomfield, A. J. P. IX 15) shows the effect of *βός*. The extension of the form *πούς* was doubtless aided by the other part of the body, *ὀδοός* (Bloomfield, A. J. P. XII 2). I note also the spelling *οῦς* : Lat. *auris* (cf. Mod. Lang. Notes, IX, col. 262).

Vedas as regular pasts (along with the 'injunctive' meaning) shows that the augment was not definitely given a past value till in the separate life of Greek and Sanskrit.

The only other word is *ἐγ-ώ*, whose *ε-* is due to the *ε-* in other words of the paradigm (cf. Gr. *ἐμέ*, Lat. *enos*).

In the same way assuming a $\sqrt{g\bar{a}}$, we should expect this to become in 2d sg. **gēs*, 3d sg. **gēt*, but in 1st sg. probably **gōm*; while its voc.-impv. would remain **gā*. When the endings became extended in verbs to **gā-si*, **gā-ti*, such forms as **gāsī*, **gāti* were the result of the feeling of the connection with impv. **gā*. Thus, beside **g-ēt*, one user of language might maintain **gā-t* to correspond with voc.-impv. **gā*, while another made a voc.-impv. **gē* to correspond with his abl. 3d sg. **g-ēt*. This differentiation of vowels, due to their assimilation to the neighboring consonants, was interpreted as gender in the verb (infra, p. 435 sq.).

The problem of gender is also involved in this explanation. From the point of view of the form, the designation of gender is limited to the thematic declensions where, beside stems in *e/o*, masc. (neut.), fem. stems in *-ā* appear, with voc. in *-ā*, i. e. *-ā*. This *-a* with guttural environment persisted, as it also persisted in the verb, e. g. Grk. *ἀγα-μαι*¹ 'admire.' It would be just as allowable to call *ā* a grade in the *e/o* series, as it is to speak of the *e/o* series at all. In the earliest Aryan times the distinction of gender must have been at least as important as the distinction of case, and probably existed before case-person was developed.

A very special reason existed for the adaptation of the voc. in *-a* to the feminine. This was the primitive child-word *mama*,² an unconscious utterance, but almost universally applied to the female parent, sometimes, however, to the natural milk of which she is

¹ I see nothing convincing in bringing *ἀγαμαι* into relation with *μέγας* 'great.' The linguistic research of to-day allows itself too many liberties with gradation. We cannot simply infer from *μέγα-ς* to **mga* without being able to prove the latter stage in any language at all. In the still unwritten chapter on the Aryan spirants *ἀγαμαι* will be found, I believe, a congener of German *ach!*—whence *ach-t*, *acht-en*.

² We cannot question the preponderance of the word *mama* over *papa*, but the latter left its trace in the Greek voc.-noms. like *ππότης*. I note that, so far as my observation goes, the natural utterances of a child give only the vowel sounds *ā*, *i*, *ū*, and their calls are nearly all reduplicative: *water*, e. g., becomes *warwa*. I find that Brugmann (Gr. II, §57, Anm.) has had the same notion of the effect of the word *mama*.

the source. We cannot doubt that natural gender preceded grammatical gender.¹

In the *-a*-stems where *a* persisted we have the same state of things as in the *e/o*-stems, thematic forms in *-ā* and dithematic forms in *-ā̃*.

THE NEUTER.—This must have been the last of the genders to develop. We have seen above (pp. 415, 416, 418), how 1st, 2d and 3d pers. nom.-accs. developed. The acc. as a practical *nomen actionis*, passive noun (supra, p. 415), was neither masc. nor fem. by natural gender, whence its adaptation to the nom. neut.; the employment of the passive *nomen actionis* as a subject must be manifestly subsequent to this use of the active *nomen agentis*.

The only specific neut. form is the nom. plur. in *-ā* || *-ā̃*: these I explain as dithematic and thematic respectively, representing Aryan *-ā̃*. The permanence of *-a* was due again to consonantal environment, e. g. in *yuḡ-a*. The thematic voc.-nom. sg. persisted in Greek, e. g. *εὐρύπῳ*, and retained, though subsequently adapted as a neut. plur., its verb in the singular: *ζυγά ἐστιν*. When the *-s* of the 2d pers. became a nom. sign in the fem. plur., the dithematic *-ā̃* which was left over was adapted to neuters. Adaptation of abandoned forms to new needs is a regular process of linguistic economy (cf. my remarks on 'Linguistic Conservation of Energy,' Mod. Lang. Notes, IX, col. 268).

THE PLURAL.—We saw above (p. 418) that the plur. and sg. were not originally separated; that the distinction of number is elusive, particularly in the 2d pers. Thus it was possible to see in Aryan *-es* an undifferentiated group, plur. or sg. at will. Its dithematic form persists in *-ōs*. There was also a diphthongal ending, Grk. *-oi*, which I take to be identical with the dithematic dat. *-ōi* in origin. The exclamatory nature of this diphthong was set forth above (p. 424); we need not be surprised, then, at the Sk. vocs. (fem.) like *āḥve*; cf. Grk. voc. *Παιδοί* (infra, p. 431). That the same type is presented by the Lat. voc. plur. *equai* is probable enough. The adaptation of the diphthong to the gender (*-ai* || *-oi*) was of course inevitable, according to the vowel shown in the sg. The acc. plur. I have explained above (p. 419 n. 1) as acc. sg. + a pluralizing *-s*, borrowed from the nom. The gen. plur. is a dithematic acc. sg. (cf. supra, p. 418).

¹ Grammatical gender is not quite coextensive with the division of stems into *ā̃*- || *e*-stems. Greek preserved fems. in *-ος* and mascs. in *-ᾶς*, and Latin has mascs. in *-ā̃*.

The loc. pluralizes by adding *-s* to the suffixless loc. sg., extended to *-s-i* as the suffixless sg. was extended by *-i* (supra, p. 423). I note also the variation *i/u* as in vb.-inflexion. The dat.-instrum. plur. adds in thematic nouns a pluralizing *-s* to the dithematic dat.-instrum. sg. Instrumentals in *-bhi*, *-mi* are used as sg. or plur., or pluralize by adding *-s*. The abl. plur. is a composite of the *-bhi*, *-mi*-forms + the thematic abl. sg. ending *-as*. The Indiranian *-i* of neut. plur. to consonant stems is of the same nature as the *-i* of verb-inflexion, and of the loc. and the *-i* of the neut. sg. (supra, l. c.).

THE DUAL.—In the nom.-acc. *-ōu/ō* we might see, perhaps, a dithematic *ō* with a *u*-vanish of a parasitic nature. The Grk. fem. dual in *-ā* is of the same nature as the masc. in *-ω*. In the *u* of the gen.-loc. *-ous* || *-ou* we might see a thematic loc. in *-u* extended to vowel stems from its place as a parasitic vanish to consonant stems (supra, l. c.), pluralized (?) or genitivized (?) by the *-s*. In the Sk. ending *-ayos* we have perhaps a double form loc. sg. *ai + ous*. It is to be noted that the loc. dual ending *-ou* is limited to Indiranian and Slavic, just as the vb.-ending *-u* for *-i* (supra, l. c.). The neut. acc. dual ending *-ai* may be identified with the loc. sg. (supra, l. c.), or may contain an element of the voc.-dat. (supra, p. 424), as the thematic fem. dual in *-ai* does. The *-ε* of Grk. duals to consonant stems is the *-e* of the voc. sg., a relic of the period before number was developed.

But the GOTHIC VERB-ENDING *-au* OF THE OPT. IMPV. invites comparison with the dual ending. It needs no explanation to say that the opt. is exclamatory, and doubtless originally of the 1st pers. To find in *au*, as in *ai* (supra, l. c.), an interjection is most easy. The demonstrative value is retained in the Sk. *as-āu* 'thou yonder' (Delbr., SF. V, §136), Grk. *αὐ-τός* 'self' and *οὐ-τός* 'yon one.' I add to this group Lat. *hōc*, *hūc*: here I find a dithematic *-āu* || *-ā*, based on an interjection *āu* (cf. Grk. *αὐτός*). In *hōc* (nom.-acc.-abl.) I see <*h*> *ā + ce*, and in *hūc* <*h*> *ou + ce* (Grk. *οὐτός*). The nature of this interjectional *-āu* || *-ā* cannot be very different from that of our English *ah!* Now in the Aryan 1st pers. subj. *-ā* we may see the bye-form of *-āu*. Its adaptation to the indic., as in Grk. *φείω*, followed. Sk. also preserves this ending very fully, viz. in the pf. 1st and 3d sg. *-āu* || *-ā* to roots in *-ā*. It is pluralized also in the Sk. 1st dual in *-āv-as*. The problematic Lith. 1st sg. pret. *-au* has perhaps the same history.

In the *-ō* of the instrumental we may have this same *-au* (v supra, p. 420, for another association with the 1st pers.).

How can this 1st sg. voc.-opt. be brought into relation with the dual? A stem *bhar-* would have had two vocatives, *bhar-a* and *bhar-āu* (also *bharāi*, supra, p. 424). It was simply a question of subsequent adaptation to treat *bhar-āu* as a voc. dual.

But there was a more specific motive, and that was the form *dvāu* 'two.' In *dv-āu* I see *tu+āu*, with an original meaning 'thou—yonder' (cf. Sk. *as-āu*, supra). It was, I believe, Benfey who first suggested that 'thou' and 'two' had a common source. In point of meaning no objection can be made to this association. The dissociation of *tu* and *dvāu* in the Aryan period was due, doubtless, to a euphonic doublet *tuau*, then *tv-au*, and with assimilation *dv-āu*.

The dualic godheads like *Mitrā Vārunā* in Vedic furnish evidence for the vocs. in *-āu* to Sk. *ā*-stems. *Mitra* was doubtless merely an epithet meaning 'friendly' (cf. Lat. *mīl-is* 'gentle'), and this 'god' was never fully personified in the Veda (cf. Kaegi's RV., Am. ed., n. 227), and ought not to be individualized any more than *Gradivus* beside *Mars*. I note that each word retains its own accent. Avestan seems to prove this, for *mīpra-* retains its ordinary meaning of 'friend,' while *varenyā*, which is perhaps to be connected with Sk. *vāruna-*, takes pejorative force, like *devā-*, becoming an epithet of demons.

The standing explanation of *Mitrā-Vārunā* (Delbr., SF. V, §58) is not to be accepted. Delbrück himself, while explaining the dual form *āhanī* 'two days' as a way of saying 'day and night,' doubts whether this explanation is applicable to *rōdasī* 'two worlds,' i. e. heaven and earth. In this last case the inference is a perfectly simple one, and *āhanī*¹ has possibly been patterned on *rōdasī*; so also *Mitrā*² = '*Mitrā* and *Vāruna*' (once

¹ If my comparison of *āhan* with Germ. *abend* (Mod. Lang. Notes, IX, col. 269) is right, then *āhanī* (: *ādah* 'burn') may have meant 'morning and evening glow.'

² It must also be noted that the compound is separated at RV. VIII 25, 2, thus: *mitrā* (dual?) . . . *vāruno* (sg.). I would explain this usage as harking back to a state of things when *mitrā* was but an epithet, in the nom.-voc., thematic **mitrāu* and dithematic *mitrāu*. This monothematic form is the background of the Sk. and Avestan nom. in *-o* (i. e. *-āu*, not *-as*; cf. on Avest. *-ō* from *-āu* Bartholomae, BB. IX, p. 308; XIII, p. 83). In Greek nouns in *-εύς* we have possibly an adaptation of this suffix to a special value. I note my equation of **Απεύς* = *I>n<d>ra* (Proc. Am. Phil. Assoc., 1894, p. vii). See also below in the text on the development of *i*- and *u*-stems from *a*-stems.

in RV.) is a forced construction patterned on *áhanī*, and not a normal usage of the language.

SOME SPECIAL FORMS.—The Sk. neut. plur. in *-āni* I explain as a dithematic neut. sg., with change of *-m* to *-n* (supra, p. 419), and the addition of the breath-fragment *-v* from the consonantal declension (supra, p. 423). The fem. declension in Sk. differs from the normal forms. This difference can be stated for the Indiranic period by saying that between the root and the dithematic endings in the sg. the group *-āy-* is interposed. I compare, morphologically, *áçvā* (nom. sg.) : *açve* (voc. sg.) with *Πειθῶ* : *Πειθῶι* (supra, p. 428). In the gen. *áçvāyās* (Avestan *-āyā*), *Πειθῶος* the endings have been affixed to the voc.-nom. in *-oy-*, just as in Germ. *-e-so* (supra, p. 415) we have the voc. + the gen. ending *-so*. In *Πειθῶ* we are to see a dithematic nom. sg. without *-s*. In *fidē-s* we have the dithematic type with *-s*. Worthy of note is the Sk. loc. in *-āyām* beside the acc. in *-ām*. For the loc.-acc. see above, p. 423.

Indeed, in the vocatives in *-āi*, *-āu* (supra, p. 430), ONE SOURCE OF THE *-i* AND *-u*-STEMS may be seen. Thus, to a locative in *-ai* a gen. *-ay-as* (Grk. *ῥέος*) was formed, which, when the suffix was accented, became *-y-ás*, thence *-i-yás* (Sk. *áv-yas*, but *ari-yás*, Grk. *ῥήος*). In *-i-y-as* the *y* was felt as a mere passing sound, and thus stems in *-i-* were abstracted to stems in *-a-*. If we substitute *u* and *w* for *i* and *y* in the above explanation, it will serve to show a source of *-u*-stems. I do not exclude original words in *-i* and *-u*, for these sounds are among the child's powers of utterance.

Traces of the extension of the voc. as a stem are seen in the Sk. nom. *vē'-s* (beside *vís*) and in the Avestan noms. in *-āus* to *-u*-stems (cf. also supra, p. 430, footnote 2). The Sk. locatives in *-āu* to *-ū* (*-i*) stems are probably of this origin. They were doubtless adapted to the loc. before the loc. sign *-i* was developed. It will be borne in mind that the prime value of *-āu* was deictic.

In the Sk. DUAL ENDING *-bhyām* we are to see a combination of the sg. endings *-bhi* and *-m* | *-mi*. Avest. *-bya* is for *-bhyṃ*. The long vowel in *-bhy-ām*, also from *-bhyṃ*, has been affected by the nom. in *ā* (*āu*): *devā-bhyām* for **devābhyām*, because of nom. *devā*; or *-ām* may be simply taken as a dithematic 1st. pers. instrum. (supra, p. 425). **Devābhyām* is justified by the pronominal dative plur. *asmābhyām*.

THE PLURAL IN VERBS.—We are prepared, after the identification of verb- and noun-inflexion given above, to pass at once to

an explanation of some of the plural forms: *bharam-as* is manifestly a plural to *bhar-am-*, and 3d dual *bharat-as* is a manifest plural to 3d sg. *bharat*; 2d dual *-thas* is modelled on 3d dual *-ta-s*, but in its *th* we have an affection from 2d sg. *-tha* of the perf. In Sk. 2d plur. *-tha* we must recognize this pf. 2d sg. *-tha*; for confusion of number see above, p. 418. The vocalization in *-tha-s/-ta-s* was patterned on that of *-m-es*, and so became *th-es*. In Grk. *φέρετε* we may have the representative of Aryan *bharatha* or the equivalent of Sk. *bhārata*. In *bhāra-ta* with impv. force, Lat. *fer-te*, we must recognize a confusion of persons due to the fact that *-sa* and *-ta* were both originally 2d persons (supra, p. 413). Note the 2d and 3d impv. ending Sk. *-tād*, Lat. *-tōd*. The ending *-me* (for *-me-s*) was doubtless patterned on the pair *-the* || *-the-s*. The duals of the impv. in *-tam*, *-tām* I reserve for treatment below. In the Sk. 1st dual dithematic *-āvas* we have a pluralization of the 1st sg. *-āu* (cf. supra, p. 429).

THE 3D PLUR. ACT.—In its secondary tenses Sanskrit employs the doublet *-an/-ur* in the 3d plur., and *-ur* universally in the perf. and opt. It is possible that the ending *-an* is for *-ant*, i. e. *-on-t*; cf. Grk. *-ον-τι*, *-ον-το*. A possible explanation of this as a 1st pers. stem *-on* (from *-om*) + a 3d personal *-to* lies implicit in what has been said about the pres. ptc. (supra, p. 419); thus: *bharan-t(a)* *adam-* 'they bearing, I eat,' *bharanta* being a form prior to the upgrowth of *-s* as a pluralizing sign (cf. 2d pers. *-ta*).

Another explanation of *-an* is that in the *n* we have a relic of a compound demonstrative stem, the same as the Indiranian and Balto-Slavic stem *a-na*, which has passed into thematic inflexion. It appears also in Sk. in the form *an-yā-* (*a-n-* + *yā-*) 'other,' i. e. the 'further of two.' In suffixal *-onto* we may see a compound of two demonstratives, just as we do in *an-ya*, with a sense of 'yon that one,' i. e. 'that one yonder'; or *-onto* is copulative 'that + this' = 'they.' The adaptation of *-on* to the plural followed subsequently, as number became important.

From the source *-on* the noun-stems may have also developed, as well as from the doublet *-om* || *-on* (supra, p. 419 and n. 1).

In the ending *-ur* I also see a demonstrative stem. Like *a-n*, it is used as an indefinite in *ἄλλος*: *alius*, from *ar₂¹ + yo-*, i. e.

¹For the symbol *r₂* I refer to my article in A. J. P. XIII, p. 463 sq. The sound is an *r* that became *l* in the European languages and remained *r* in the Asiatic. As a final it did not alter in European, nor in certain special positions (ib., p. 472), and perhaps not always as initial. That in the passage

$a + r + yá$, and as a remote demonstrative in Lat. *olle*¹: *ul-tra*, Umbr. *uru* || *ulo*; cf. Sk. *ārē* 'far, afar.'² In the Greek enclitic *pa'* || *ap'* we have this pronominal stem, and in O.Irish *ro*.³ This word is used as a perfect-forming suffix; cf. s. v. *δ*), Windisch, *Irische Texte*, p. 744: "vor Präsensformen in der Erzählung, die dadurch praeteritale Bedeutung erhalten," and, just before: "Gebrauch sehr gewöhnlich vor Perfectum und Praeteritum." In Indiranic *-ur* is a 3d plur. ending, but that is no proof that it was originally 3d plur. Sk. also shows compound forms with this ending, restricted to the perf., viz. 2d dual *-thur*, 3d dual *-tur*, but euphonically often *-thus*, *-tus*; *-thus* is patterned manifestly in the consonant part on the 2d sg. pf. *-tha*. But *-tur* is not solely an Indiranic form. It appears also in the Italo-Celtic deponent and passive, Lat. 3d sg. *-tur*, Ir. 3d plur. *-tir* || *-tar*. The Ir. 3d sg. pass. is *-ir* || *-ar*, and will be seen to correspond with Sk. 3d plur. in *-ur*. Now, Brugmann (*Grundriss*, I, §77)

of *r*₂ to *l* certain *r*'s should have resisted change by adaptation to certain meanings, is in line with the statements above advanced. It is splitting hairs to set up an Aryan root *delo* 'split' and another *dero* 'split,' as Prellwitz has done in his *Etym. Wört.*, s. v. *δέλτος* and *δέρω*, when they ought to be united under the form *der*₂. It is a rigid uniformitarian that would separate *χολάδες* 'guts' from *χορδή* 'gut,' or Umbr. *uru* from *ulo* = *illo*. I do not myself believe that the interchange of *r* and *l* needs to be referred to dissimilative reduplicating groups (cf. Noreen, *Urgerm. Lautlehre*, §60, Anm. 1). The conception of a root at all is that it is the common base of all its derivatives. Thus freedom of interchange between *r* and *l* is limited by semantic considerations.

¹ I surmise that *ille* for *olle* (from *ll-e* or *l-se?*) has been affected in its initial by *i-s*, *i-d*.

² It has been already suggested in the *Academy* (1086), by Darbishire, that Lat. *altus* 'renowned, noble' belongs to this group; cf. *ille* '(that) famous.' We could thus connect Sk. *aryd* 'lofty, noble' and Grk. *ἀριστος*. To this *λῳίων* 'better' may be related, from **l̥-iyon-s*. The variation between *r* and *l* in Greek would have associated itself with a divergence of meaning.

³ The specific correspondences of usage between Grk. *ap'* || *pa'* and Ir. *ro* are very marked; *ro* is used with the rel. pron., and is sometimes enclitic in position (Windisch, s. v. *ro* 3); similar in use is *ap'* (Autenrieth, s. v. *ἀρα* 4): *ro* is used after the negation (Wind., l. c. 1); note *οὐδ' ap' 'ἐμέλλεν* (cited by Autenrieth, l. c. 1): "in der Composition steht *ro* zwischen Präpos und Verbalform" (Wind., l. c. 8); note *κατ' ap' ἐζέτο* (A. 68): *ro* is used after *co-n* 'in order that' (Wind., l. c. 4), *ap'* is used after causal particles (Auten., l. c. 3). The identification of *ro* with *πρό*, good enough phonetically, suffers from a lack of analogy in its syntactical value: when we conceive *ro* as a demonstrative, the Lat. use of *iam* (Gildersleeve's *Gram.*, §230) as a tense-forming particle, and the Sk. use of *sma* (Wh.², §778 *b* and *c*) are cases directly analogous. For *ro* with pronouns and conjunctions, the equation with *πρό* is worthless.

makes the Ir. gen. *athar* come from **pater os*, or **patr-os*, but, after all, that does not make the *-ar* clear, so far as I can see. I suggest instead that in the gen. *māthar* we have the same form as in Sk. *mātūr*. In both I see an Aryan *-tṛ*, not *-tṛ-s*, before vowels *-tṛr* (Gr. I, §285), whence Sk. *-tur* and Irish *-tar* (cf. *ib.*, §298, 3). Thus in Ir. 3d sg. deponent *-thar*, and in Lat. 3d sg. dep. *-tur*, I would see an Aryan *-tṛr*, Sk. 3d dual *-tur*. This state of things allows us to see at once that in Ir. 3d sg. *-ar*¹ we have a form directly comparable with Sk. 3d plur. *-ur*. I note also Umbr. 3d sg. *fer-ar* (= *fer-a-tur*). The correspondence is certainly striking, that the abl. gen. sg. is again found similar to the 3d pers. sg. of the verb.

A word remains to be said on the nature of the compound stem *tara-* with thematic bye-form *tr-a-*. It is, like *sya* (supra, p. 422), and *sva*, below, a compound of two demonstrative stems, *ta-* + *ra-*. As we actually have it before us, we may regard the ending *-tur* as an abl. 3d sg. in *-t* + an abl. 3d sg. in *-r*, the result of elision of *-ra*, as *-t* is of *-ta*.

THE SUFFIX *ter*.—The difficult question of the relation of the past ptc. suffix in *-to* to the agential suffix in *-tar* here comes to a solution. In Avestan the ptc. and the agency noun often conflict in meaning (cf. my 'Studies in Etymology,' A. J. P. XIII, p. 477). It was noted above (p. 416) how the 3d pers. consonantal stem *ā-yvōr-* is act. or pass. in meaning. Its thematic extension *ā-yvōro-* was prevalently passive; a further compound with the weak stem *-r-*, giving *-tar-*, was again prevalently active.

I reserve to a later point the discussion of the development of the Italo-Celtic deponent-passive, and of the Sanskrit perf., merely remarking for the present that what is probably the earliest of all the perfs., the only one, I believe, widely diffused in the subsequent literatures, is that represented by Sk. *vēda*, Grk. *foīda*, which is neither reduplicated nor 'perfect.'

OTHER DEMONSTRATIVE STEMS IN VERB-INFLEXION.—The stem *ve-*² also entered into verb-inflection; this stem was finally adapted to the 2d person, and is the base of Lat. *vōs*. It appears in Sanskrit verb-inflection as a 2d sg. (mid.) impv. in the compound form *-sva*, directly comparable with *-sya* (supra, p. 422).

¹ This is the ending for conjunct inflexion. In the form *ber-ir* beside *dober-ar* I would see a **ber-g*, with metathesis of **ber-ri* because of *dober-ar*.

² From this point on the writing of stems with *-a* will be occasionally given up in favor of the current theories.

ke, ske (Brugmann's Classes XXII-XXIII).—Another stem that made its way into verb-inflexion was *ke-*. Just like *e-*, this was doubtless added first to the root-nouns to form impvs. Its deictic value for verbs was just what it was for pronouns. The *-k* became so thoroughly identified with the root that examples covering the Aryan field do not appear. I find one in Latin *face* || *fac*, precisely comparable in point of formation with *hī-ce* || *hī-c*. In Greek the pf. sign *-κε* is doubtless to be ascribed to this source, as also the three aorists in *-κε*. But if the proposition is incapable of proof that *-ke-* was added to the Aryan root, it is very clear that the compound *-ske-* was. I note Hom. *βάσκε*¹ (always with elision *βάσκ'*) and Vedic *gācha*. This type was widely diffused. Interesting is the distribution of these suffixes between pres. and aor. in Grk., e. g. *λά-σκειν* : *λα-κείν*, where the root was *r₂ǎ* (cf. the author in Proc. Am. Phil. Assoc., '94, p. vi).

te, ste (?) (Brugmann's Class XXIV).—This stem was also the base of an inflective type (Brugmann, Gr. II, §679 sq.). Traces of the compound stem *ste-* are perhaps to be found in Germanic, e. g. in NHG. *kri-sten* 'groan' : MLG. *crī-ten* (ib., §685), and in Baltic, e. g. Lith. *kil-stu* (ib., §686), which is possibly original, and not analogical.

se, ye, sye (Brugmann, XIX sq., XXVI sq., XXX).—We are prepared to see in these verbal elements the same development from demonstrative stems as has been seen in the case of *e, ce*, etc.

ene || *ne, neve* || *neu* || *nu* (Brugmann, XIII, XVII-XVIII).—In *ene* || *ne*, compound of *e + ne*, and in *neve*, compound of *ne + ve*, we have further demonstrative stems that penetrated into verb-inflexion in a way already sufficiently indicated.

So much in sketchy outline for the part of demonstrative stems in verb-inflexion. I reserve for subsequent fuller treatment some of these points.

GENDER IN THE VERB.—It is well known that the Hebrew verb denotes the gender of its subject, in the 2d and 3d persons (cf. Harper's Elements, §58, n. 2). The Aryan verb has the category of gender in all its participles. May it not also have had the gender-inflexion in its finite forms?

In the first place, it probably did have that affection in its denominatives. In Greek there are a great number of denomi-

¹ *βάσκ'* 6 times, other forms in compounds twice: this statistic possibly allows an inference to be drawn as to the impv. origin of this type.

natives in *áō* to noun-stems in *-o/e-*. This relation I ascribed to gender in the following cautious way, in an exercise on the Greek Denominatives which I read in Prof. Brugmann's *Linguistische Gesellschaft in Leipzig*, in the winter of 1892: "Es gab also in der Urzeit neben masc. *o*-st. fem. *ā*-st. die 1) die geschlechtige motion zeigten, und 2) abstracta waren. Zu der 2en klasse formten sich schon in der Urzeit vb. denom. in *āy*—möglicher weise auch zu der 1ten klasse—um die geschlechtige motion auf das gebiet des verbums fortzuführen. Auf beiden fällen, was die einzelnen sprachen betrifft, können entweder die *ā*-st. oder die *o*-st. oder beide ausgestorben sein, und die dazugehörigen vb. denom. geblieben sein."

To that statement, which I then carried no further, I offer the following considerations by way of proof. The material is assembled in L. Sütterlin's *Zur Gesch. der Vb. Denom. im Altgriechischen*, p. 19 f. Sütterlin's study annexes these verbs in *áō* to neut. plurals, where such are to be found, a process due to V. Henry, *Études sur l'Analogie*, p. 175 f., or he ascribes such formations, when only masc. *o*-stems survive, to analogical associations with verbs of like meaning beside feminine nouns, e. g. *γοάω* : *γόςος*, patterned on *βοάω* : *βοή*. His first group consists of agricultural verbs. Of these Homer uses *ἀμάω* 'mow' frequently and with any sort of subject. At ι 247 *πλεκτοῖς ἐν ταλάροισιν ἀμυσάμενος κατέθηκεν* seems to mean 'collecting < measuring', in which case, if the word is to be connected with Lat. *messis* 'harvest,' which I greatly doubt, we must refer it to the *√mē* 'measure.'¹ Its prothetic *a-* comes perhaps from **mā-*. In point of fact one cannot well pronounce an initial *m* without putting a short *m̥* before it. This phonetic condition will explain the prothetic vowels before *m* and *n*, in *ἀ-νήρ*, e. g.

Another Homeric verb is *ἀλοιάω*, *ἀπ. λεγ.* at I 568 *πολλὰ δὲ καὶ γαῖαν πολυφόρβην χερσὶν ἀλοῖα* 'Many times she lashed the grass-clad earth with her hands.' The verb is supposed to be denominative to *ἀλωή* 'threshing-floor.' I note that the subject is feminine.

The third agricultural verb in Homer is *τρυνάω* 'gather grapes.' This occurs in the *Hoplopoia*, Σ 566, and is explained by the two next verses: *παρθενικαὶ δὲ καὶ ἡίθειοι ἀταλὰ φρονεόντες | πλεκτοῖς ἐν ταλάροις φέρον μελιθδεά καρπόν*. Here it is plain that maidens were engaged at the vintage. In η 124 the word is again used, with indefinite subject, but possibly harking back to *δμφαί* in vs. 103.

¹ *-áō* and not *-έω*, because the vb. is feminine (cf. *infra*, p. 438).

That women were the agricultural laborers of Aryan times is every way likely. The Indian women of North America were, and the women on the continent of Europe are to-day.¹ The Homeric women ground the meal, η 104. The men seem to have ploughed, ε 542, and the verb ἀρώ is masculine. In Lat. *agricola*, *arāre* we seem to have feminines, possibly in reminiscence of an earlier state in which husbandry, even in its heaviest tasks, was left to the women.² It is possible, too, that the feminine association came from the fact that cows were the plough-drawers, γ 382-3.

Sütterlin next sets up a class of verbs (p. 22) showing "eine handwerksmässige fertigkeit oder thätigkeit." The Homeric examples for which he finds feminines in -η as patterns, are τεχνάω, ὑφάω and σκεπάω; ὑφάω means 'weave,' and is certainly feminine; τεχνάω was used in the same sense (η 110 ἰστῶν τεχνῆσαι). σκεπάω 'ward off' is used in the form σκεπόωσι (for σκεπάουσι) at ν 99, but with feminine subject. τεχνάομαι as a general handicrafts word would have affected πελεκάω 'hew' (ε 244). There is undoubted connection between τεχνάομαι and τέκτων. Lat. *texere* 'weave' has the special sense of τεχνῆσαι in η 110 (supra). Every one knows that the sewing-machine is feminine.

Sütterlin (p. 23) makes a class of verbs that express sickness. The most of these have beside them *ā*-stems and call for no explanation. I remark that disease is in a sense feminine, owing to woman's law of periodicity.³ Lat. *laborare* possibly means 'travail,' but this sense for the vb. is not seen in the citations presented by L. and Sh. before Horace (Carm. III 22, 2 *laborantes utero puellae*), though it is perhaps implicit in *laborare ex intestinis*, Cic. Fam. VII 26, 1; *ex renibus*, id. Tusc. II 60. The noun *labor* 'travail' is seen in Plaut. Curc. 219-21:

valetudo decrescit, ad crescit labor
nam iam quasi sona liene cinctus ambulo
geminos in ventre habere videor filios.

Note also Vg. Georgic. IV 340 *Lucinae labores*. In Greek τοκάω 'be near delivery' we have the same inevitable feminine.

Sütterlin's next two classes of verbs (p. 24) denote 'strong and sickly passions.' Of these κισσάω is used of pregnant women's

¹ Cf. O. T. Mason, *Woman's Share in Primitive Culture*, chs. II, VI.

² I cite Plaut. Merc. 396-7: nihil opus nobis ancilla, nisi quae texat, quae molat, lignum caedat, pensum faciat, aedis vorrat etc.

³ Michelet in *L'Amour*, I, ch. II.

desire for strange food, σκυζάω of a bitch in heat, σπαργάω of pregnancy, all feminine; καπράω 'want the boar' is a feminine verb to a masc. *o*-stem; these verbs are necessarily *feminina tantum*.

A class of verbs implying outcries is also set up by Sütterlin (p. 24): "γῶά 'cry out' : γῶος 'cry' patterned itself on βοάω : βοά." The reason is deeper than that. Kingsley gave it in the 'Three Fishers': "For men must work and women must weep."¹ Cf. Φ 123 οὐδέ σε μήτηρ—γούσεται. κολφάω 'scold' is feminine even in its English definition, and its restriction by Homer to Thersites does not gainsay this proposition. μωμάομαι, Γ 412, is used of gossiping women, and in ζ 274 of their sisters, gossiping men.

Io οἰστρήσασα (Aesch. Pr. 836) is plainly in the condition of a κύων σκυζήσασα.

Enough has been said to show that the notion of gender in the verb is not inconsistent with the distribution of *áo*-verbs in Greek to *o/e*-stems. It remains to inquire if gender is exhibited by verbs not denominative. To this query I answer: As gender, no. But if the identification of noun-cases and verb-persons is correct, then the distinction of gender ought to subsist in the verb.

Now, if gender developed in the noun-verb stage, what became of it when the verb was dissociated from the noun? It persisted in form, and subsequently came to be regarded as mode. Sk. *rām*,² Lat. *rēm* from **rē-m*, are in point of formation precisely the same as *ἔ-βλην*; and so abl.-gen. *rē* from **rēd* is of like formation with **ἔ-βλην*-(τ). Sk. *vayo-dhā-m* is the same as *a-dhā-m* in point of formation. In *ἔ-βλην* we do not have the conversion into mode, but it is interpreted as a passive. The relation of Sk. subj. *as-as* to Lat. *er-ās* is that of a thematic masc. to a dithematic fem.; thus *er-ās* belongs to a fem. *ā*-stem, functioning in Latin as indic., while *reg-ā-s*, the same formation precisely, functions as subj. In Grk. *φερ-ε*-(τ) : Lat. *fer-ē-t* we have a thematic abl. masc. and its corresponding dithematic form. Lat. *fer-ā-t*, subj., is a fem. to *fer-ē-t*, fut. indic. In *paterfamiliās* we have the same ending as in *fer-ās*.

The feminine forms are what we have in the Lat. 1st conjugation, into which the denominatives do not so easily fall by the Latin laws of contraction. The only vowel contraction in Latin, of those that can be said to be beyond doubt (cf. Brug., Gr.

¹ The Aryan woman seems to have done both.

² In Sk. *rāyam*, i. e. **rēyam*, the *y* does not belong to the stem, but is merely a passing sound, as it is in *dhīyam* : *dhī-s*.

I, §604), is that of *eie* to *ee* to *ē* in *tres* from **treyes*, and thus *moneyete* gives *monēte*. The difficulties involved in the contractions of *ǣ+ě* and *ǣ+ō* are very great. The supposed law that *ā+ō* gives *ō* is based on the denominatives solely, but many, very many, 1st conj. verbs wear the look of root-verbs, and very few retain the nouns on which they were based. And not only in Latin, but in all branches of the family, numerous violations of the inviolable laws of contraction take place (Brug., Gr. II, §769). The question presents itself whether in *-ē-yo* verbs the *y* is not a mere passing sound which has extended itself partially to the *ā-yo-* class. Brugmann (l. c.) himself refers *plantāmus* to his Xth class (Gr. II, §578), and in this class, consisting of weak root+accented *ā*, I see dithematic feminines; and so where the vowel is *ē/ō* I see dithematic masculines.

I would extend this explanation to Greek also, and in the aorists in *-σα* see, not analogical extensions from a 1st person *sm̃* whence *σα*, 3d pers. plur. *sñ* whence *σα*, but a fem. to the aor. masc. (i. e. fut.) in *-σω*.

THE SUBJUNCTIVE PROBLEM may now be stated in a few words. To non-thematic indicatives there were thematic subjunctives, and to thematic indicatives there were dithematic subjunctives, while dithematic indicatives functioned also as subjunctives.

THE OPTATIVE.—I have given above (p. 424) a theory for the dat. 1st sg. middle. Dat. and opt. by their intrinsic nature suggest identification. Personal interest, exclamation are the notes of both. In the Sk. subj.-impv. 1st sg. middle in *-āi* I recognize a dithematic correspondent to 1st sg. ind. mid. = dat.-inf.-impv.¹ *-e (āi)*. An intrinsic difference between impv. (1st pers.) and opt. or subj. never existed, of course. We can confidently construct for the Aryan languages an opt. paradigm 1st pers. *bharai*, 2d *bharais*, 3d *bharait*, etc.; the 1st pers. was extended in Sk. to *bhare-yam* (for *bharāy-am*) by a 1st pers. suffix *-am* with passing vowel *-y-*, and in Grk. to *φείποι-μι* by 1st pers. *-μι*.

For the opt. suffix *-yē/-ī-*, of non-thematic inflexion, we are to see, I believe, an extension from the form *bharayam*, whence *-ya-* was abstracted as opt. sign, and applied to consonant stems; thus *-yām*, *-yās*, etc., dithematic forms, came into being. Or more

¹ Wh.², §982 *d*; Delbr., SF. V, §230, 3; cf. §228, 2. The infinitive in *-adhyāi* (Delbr., l. c.) is specially used as a form of wish in the 1st person. This was doubtless true also of the Aryan infin.; the falling away of the last usage in Sk. is doubtless due to the 1st middle in *-e (ai)*.

simply, verb-roots with suffix *-ya-* used that suffix dithematically to express mode. The grade *-ī-* was reduced from *-yā* in the subsequent development of the middle, with accent following the suffix. The length of the opt. *-ī-*¹ had perhaps a dithematic intention. The forms *-yā-m*, etc., may thus be called subjunctives, if one chooses, subsequently treated as opts. because of *bhārayam*, as set forth above.²

I present here a combination to show another way in which the *-ya-*suffix may have been got: *bharata adaya* 'he (*hic*) bears, he (*ille*) eats' = 'one bears that the other may eat.'³

HEBREW PARALLELS.—The study of agglutinative groups has brought us to this point: inflexion has developed in the Aryan speech from primitive action-nouns + demonstrative stems, finally lost to consciousness as inflective endings; verbs and nouns proceed from a common stem-background, and case and person and mode-signs from common agglutinative groups of stems + demonstratives. The categories of verb- and noun-inflexion ought then to coincide: so for the verb the category of gender has been set up. The participial inflexion of gender does not really differ from verb-inflexion for gender. Hebrew has also been brought in evidence for the gender-inflexion in verbs. The agglutinative theory has also brought us to the concept of person in the noun. Now, in Hebrew the noun is also inflected for person, for this is the meaning of the pronominal suffixes in Hebrew (cf. Bickell's Outlines, §§103, 104; Harper's Elements, §§124, 125).

I venture upon some remarks touching Hebrew forms, based upon Bickell, which seem to fall in line with the Aryan development, acknowledging in advance my entire ignorance of Hebrew. Thus, in declension in Hebrew the nom. affix was *-va* (Bickell, §85), with a grade *-u*. In this we can see the 2d pers. suffix Aryan *-va-* made nom. So in Aryan the nom. suffix was the 2d

¹ The *ī* in *velim*, etc., may come from a primitive 1st sg. *vel-ī* from **vel-ai*.

² This opt. suffix is doubtless morphologically the same as the noun suffix *-yē-* || *-i-*. I note that the difficulties arising from the appearance of *-yā-* where we should expect *-yē-* in this class, vanish when we recognize that originally gender-distinction doubtless held, and *-yā-* was dithem. fem. to *-yē-*, dithem. masc. Finally all dithem. forms of this stem became fem. I shall presently make another suggestion for these stems. I remark here that the Greek nouns in *-ā* may chance to preserve in the *ā* an original undifferentiated thematic *ā*.

³ It is obvious that case may have developed here; thus, 'one bears for the other's eating'; but I think the explanation of the dat. as 1st personal and exclamatory far more cogent (supra, p. 424).

pers. -s. There was a genitive suffix *-ya/-i*, which is comparable with the *-ya* in the Aryan suffix *-sya* (supra, p. 415). In the so-called indefinite suffix *-ma* we may perhaps see Aryan 1st pers. acc. *-a-m*, which actually became the neuter (i. e. indefinite) case-sign (supra, p. 428).¹ Hebrew retains besides only *-ta*, a feminine affix. In this one might see Aryan 3d pers. *-ta*, retained only in the vb.² One is reminded at this place to compare the Sk. fem. suffix for abstract nouns in *-tā* (cf. Wh.², §1237).

The nom. **sūsā* || *sūs* is comparable with the Greek nom.-voc. like *νεφεληγερέτα*, etc. This form is preserved as *sūsā* (ib., §86) and used like a locative, a usage that agrees very well with the assumed origin of the thematic vowel (supra, p. 413).

The plural of the Hebrew noun is formed by doubling the termination of the gen. sg. (ib., §90). I compare Sk. *dev-ās-as*, doubtless first **devās-as*. Of like formation was the feminine plur. (ib., §93), unless in *-āθ* we are to see a dithematic form.

It is worth noting that in the Hebrew dual ending *-ayim*, e. g. *sūs-a-yim* (ib., §91), we seem close on the Greek duals in *-ouv*, *-ouv*.

In the verb-inflexion the 3d sg. masc. ends in *-a* (ib., §110), and this we may compare with the Aryan form *ḡhar-a* (supra, p. 413). The 3d sg. fem. ended in **-a-t* || *-ā*. In the 2d sg. masc. the ending is **-tā* || *-tā*, and 2d sg. fem. ends in non-thematic *-t*. In the masc. plur. the 2d person ends in **-tum* || *-tēm*, and one thinks of the dual ending *-rov* in Greek. Bickell expressly interprets these endings as belonging to the personal pronoun, but we must look for a demonstrative back of the personal pronoun.

For 1st sg. *tī* confusion with *kī* has been accepted (infra n. 2).

In 3d plur. *ū* for *u-u* we seem to have a dithematic treatment of the masc. affix *-va* || *-u*.

In 1st plur. *-nu* some relation with Lat. *nos* may obtain, as I shall presently suggest.

The Hebrew verb also employs pronoun prefixes. Thus, for the 3d masc. sg. and plur. *yi-*, 3d fem. sg. and plur. *ti-*, 2d sg. and plur. masc. and fem. *ti-*, 1st sg. *e-* and 1st plur. *ni-*. The form in *e-* it is hard not to connect with Grk. *ε-* in *ε-θέλω*, etc., and the augment *e-*.

¹ Note in *sūsam* 'equum aliquem' the external agreement with *equom*.

² That the affix *-ta* should be 2d pers., while it is 3d in Aryan, does not signify, as the demonstrative was capable of either personal value; thus in Sk. the stem *ta-* is of any person at will (supra, p. 414). In Hebrew the demonstrative stems *ka* (1st pers.) and *ta* (2d pers.) are often interchanged (Bickell, §82, note).

We seem to have in Latin *ce-dō* (impv.) this reversed order. The impv. *ce-dō* differs in no respect save the order from *fa-ce* (cf. *supra*, p. 435).

The developed personal pronouns in Hebrew lend themselves to interpretation as demonstratives. In 1st pers. *'ānōχī* Bickell (§82, note) interprets *ān-* as prefix, and there is a briefer form *'ānī*. I would find *an-* (cf. Lat. *nos*) a variant of *am-* (*supra*, p. 419), and *-ōχī* reminds, in its guttural part, of Sk. *ahām*. Of the 2d pers. pron. Bickell (l. c.) says: "The true root of the 2d person is certainly *ta* to which *an* is prefixed." I would see here a syncretic form, as Bickell does, warranted by the previous syncretism in the 1st person.

There is known to be a considerable quantity of apparently common stem-material between the Semitic and Aryan families. They seem likewise to have some common methods of inflexion derived from agglutinative groups. My own ignorance of any Semitic language denies me the right to an opinion in regard to their ultimate kinship. That possibility seems to me not to be excluded.

LEXINGTON, VA.

EDWIN W. FAY.